ABSTRACT

A method is provided for covalently linking carbohydrates, proteins, nucleic acids, and other biomolecules under neutral conditions, using a Diels-Alder cycloaddition reaction. In an example, activated carbon-carbon double bonds were attached to free amino sites of a carrier protein, and a conjugated diene was attached to a carbohydrate hapten. Spontaneous coupling of the carbohydrate and the protein components under very mild conditions provided glycoconjugates containing up to 37 carbohydrate hapten units per carrier protein molecule. The method is also applicable to the immobilization of biomolecules on gel or solid supports. The conjugated products are useful as immunogens and as analytical and diagnostic reagents.